

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
FCC Seeks Comment on)	IB Docket No. 16-185
Recommendations Approved by the World)	
Radiocommunication Conference)	
Advisory Committee)	

COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile”)^{1/} submits these comments in response to the Public Notice issued by the International Bureau (“IB”) seeking comments on the draft recommendations (the “Recommendations”) of the World Radiocommunication Conference Advisory Committee (“WAC”) on several issues that will be considered at the 2019 World Radiocommunication Conference (“WRC-19”).^{2/} Some of the Recommendations, while necessarily preliminary, do not fully take into consideration what the Commission is attempting to achieve in other proceedings – particularly its *Spectrum Frontiers* proceeding, which is intended to allocate additional spectrum for Fifth Generation (“5G”) mobile terrestrial wireless services.^{3/} The Commission must continue to be a leader in the critical effort to ensure that

^{1/} T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{2/} *FCC Seeks Comment on Recommendations Approved by the World Radiocommunication Conference Advisory Committee*, Public Notice, DA 16-1216 (rel. Oct. 25, 2016) (“Public Notice”).

^{3/} *See, Use of Spectrum Bands Above 24 GHz For Mobile Radio Services; Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands; Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band; Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band; Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0- 38.0 GHz and 40.0-40.5 GHz for Government Operations*, Report and Order and Further Notice of

spectrum is globally available for those developing services. The Recommendations should therefore be adjusted so that they more accurately reflect our Nation's goals.

I. INTRODUCTION

T-Mobile applauds the fact that the Commission has taken a leadership role in allocating spectrum for 5G mobile terrestrial operations including through the actions that it has taken, and it proposes to take, in the *Spectrum Frontiers* proceeding. There, the Commission has already designated the 28 GHz band, the 37 GHz band, and the 39 GHz band for licensed mobile terrestrial operations.^{4/} And, in the *Further Notice*, the Commission seeks comment on several other bands that may be designated for 5G mobile terrestrial use. The spectrum bands on which the Commission seeks comment in the *Further Notice* (and additional spectrum that other commenters have proposed that the Commission consider) are critical to making capacity available in the future.

For the spectrum under consideration in the *Further Notice* to best support 5G mobile terrestrial use, it must be free, to the maximum extent possible, of other users. Shared spectrum that limits or impairs a service, compromises providers' ability to make full use of the bands and meet consumer needs as well as providers' can through exclusively licensed spectrum. As T-Mobile's reply comments in response to the *Further Notice* demonstrated in particular, satellite use of 5G spectrum and implementation of spectrum access systems ("SAS") and similar mechanisms will degrade the user experience.^{5/} And, the public interest is best served if this 5G

Proposed Rulemaking, FCC 16-89 (rel. July 14, 2016) (subparts referred to respectively as the "*Report and Order*" and the "*Further Notice*").

^{4/} While T-Mobile appreciates the Commission taking this important step, this spectrum is already heavily licensed and some is also encumbered by satellite operations. Accordingly, as T-Mobile has noted in its comments and reply comments in response to the *Further Notice*, the Commission must make additional spectrum available for new 5G mobile terrestrial operations.

^{5/} See Reply Comments of T-Mobile USA, Inc., Dkt. No. 14-177, *et al.* (filed Oct. 31, 2016).

mobile terrestrial spectrum is regulated on a consistent basis internationally. A consistent global approach will ensure the largest market for equipment in particular bands, driving down costs and promoting innovation in the spectrum. Accordingly, it is important for the U.S. position to promote, on an international basis, policies – like making spectrum available for 5G terrestrial services on an exclusive basis – that will best promote the most robust development of spectrum bands for 5G mobile terrestrial use.

The Recommendations do not yet make this clear, and the Commission should modify them before they are final. Agenda Item proposals that may result in inconsistent use of bands that in the U.S. have been targeted for possible 5G mobile terrestrial use is contrary to the U.S. interest in promoting a global marketplace based on a U.S. regulatory approach. Therefore, the Commission should, in further developing the proposed U.S. position, make it clear that the U.S. will oppose inconsistent international use of spectrum bands that are, or may be, under consideration in the *Spectrum Frontiers* proceeding for 5G mobile terrestrial use.

II. THE COMMISSION SHOULD FURTHER REFINE CERTAIN WAC RECOMMENDATIONS

A. Document WAC/013 (24.10.16) -- Agenda Item 1.13 – Identification of Frequency Bands for the Future Development of International Mobile Telecommunications (“IMT”).

This Agenda Item will consider identification of frequency bands for the future development of IMT, including possible additional allocations to the mobile service on a primary basis.^{6/} T-Mobile strongly supports development of a U.S. position that identifies and allocates additional frequency bands for IMT. It notes that the bands identified in WRC-15 Resolution 238^{7/} in support of this Agenda Item include those in the *Further Notice*, plus other bands not

^{6/} See *Public Notice*, Attachment A at 10-11.

^{7/} Resolution 238 (WRC-15), World Radiocommunication Conference (2015), http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0014PDFE.pdf.

included in the *Further Notice* but that are appropriately the subject of study – the 40.5-42.5 GHz band, for example. As the Commission considers a final U.S. position on proposals based on this Agenda Item, in addition to the bands listed in Resolution 238, T-Mobile urges that the U.S. continue to seek international consideration of the 27.5-28.35 GHz band – in which the Commission allowed 5G mobile terrestrial operations in the *Report and Order* – for IMT use. Because that spectrum has now been allocated domestically for 5G mobile terrestrial operations, the public interest supports continued U.S. efforts to harmonize the use of the band internationally.

Further, T-Mobile urges that in finalizing its position on proposals based on Agenda Item 1.13, the U.S. seek to make the spectrum designated for allocation to the mobile service on a primary basis available on an exclusive licensed basis. While WRC-15 Resolution 238 references “sharing and compatibility studies” that will be conducted in connection with this Agenda Item, it is plain from the context of that Resolution that sharing may be with incumbent services.^{8/} Resolution 238 must not be interpreted to mean that studies should be conducted to determine how spectrum allocated in the future for IMT – where there are no incumbents today – should be shared with other services. Doing so will defeat the purpose of Agenda Item 1.13, which is to meet future IMT needs that are best satisfied with exclusively licensed spectrum. Therefore, the U.S. position should be to support proposals that would allocate spectrum for IMT operations on an exclusive licensed basis to the extent feasible, based on incumbent operations today.

^{8/} *Id.*

B. Document WAS/-14(24.10.16) -- Agenda Item 1.14 – High Altitude Platform Stations (“HAPS”)

This Agenda Item will consider appropriate regulatory actions for HAPS, within existing fixed-service allocations.^{9/} Proposals are expected to be based on studies conducted pursuant to WRC-15 Resolution 160, which calls for the evaluation of, among others, the 24.25-27.7 GHz band in ITU Region 2 and the 38-39.5 GHz band for HAPS.^{10/} In developing its final position on any proposals under this Agenda Item, the U.S. must ensure that any WRC-19 actions take into consideration the Commission’s disposition of the 24 GHz band in the *Further Notice*. Because there have been no U.S. decisions made about use of that band, any study under WRC-15 Resolution 160 – and any proposals under this Agenda Item that rely on such a study – may be flawed. Instead, the final U.S. position must rely on an evaluation of how HAPS use will affect the use of the band as permitted in the U.S. as a result of the *Further Notice*. To the extent that there remain open issues with respect to that band, the U.S. position on any proposals must assume the full use of the band for 5G mobile terrestrial operations under parameters similar to those adopted for other 5G bands.

Further, the 39 GHz band has already been designated for 5G mobile terrestrial use in the *Report and Order*. The final U.S. position on any proposals under this Agenda Item must take into consideration decisions already made about the band, including the primacy of mobile terrestrial operations in the band. The U.S. must reject any proposals at WRC-19 made under this Agenda Item which rely on studies performed pursuant to WRC-15 Resolution 160 that fail to take this into account.

^{9/} See *Public Notice*, Attachment A at 12-13.

^{10/} See Resolution 160 (WRC-15), World Radiocommunication Conference (2015), http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0015PDFE.pdf.

C. Document WAC/018(24.10.16) – Agenda Item 1.5 – Earth Stations in Motion (“ESIMs”)

This Agenda Item would consider the use of, among others, the 27.5-29.5 GHz band for ESIMs.^{11/} WRC-15 Resolution 158 initiated a study of sharing and compatibility between ESIMs and current and planned use of that band.^{12/} The 28 GHz band was designated in the *Report and Order* for 5G mobile terrestrial operations. T-Mobile recognizes that the studies contemplated by Resolution 158 were required to “ensure protection and not impose undue constraints” on allocated services in the band. Nevertheless, the final U.S. position on any proposals made under this Agenda Item must take into consideration the rules adopted in the *Report and Order* – including the limited use permitted by earth station operations. ESIMs appear to be inconsistent with those rules. Any studies contemplated by Resolution 158 on which those proposals under this Agenda Item are based must adequately take into consideration those rules, and the U.S. position should be to reject proposals under this Agenda Item if they fail to take the recently adopted rules into account. Even though the 28 GHz band is not targeted for international IMT operations, as noted above, the U.S. position should be, with respect to any relevant proposal, to revisit that decision, and no action under this Agenda Item should prejudice that potential outcome.

D. Document WAC/018(24.10.16) – Agenda Item 1.6 – Regulatory Framework for non-GSO Fixed Satellite Service (“FSS”) Systems in the 37.5-39.5 GHz, 39.5-42.5 GHz, 47.2 – 50.2 GHz and 50.4-51.4 GHz Bands

This Agenda Item would consider the development of a regulatory framework for use of these bands for non-GSO satellite systems.^{13/} The Commission is considering use of certain of

^{11/} See *Public Notice*, Attachment A at 19-20.

^{12/} See Resolution 158 (WRC-15), World Radiocommunication Conference (2015), http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0005PDFE.pdf.

^{13/} See *Public Notice*, Attachment A at 21-22.

these bands in the *Further Notice*. In developing its final position on any agenda items presented pursuant to this Agenda Item, the U.S. must ensure that any proposed actions take into consideration the Commission's disposition of the bands in the *Further Notice*. Because there have been no U.S. decisions made about use of these bands, like potential HAPS use of the 24 GHz band, any study pursuant to WRC-15 Resolution 159^{14/} – and any proposals that rely on those studies – may be flawed. Instead, the final U.S. position must rely on an evaluation of how proposed satellite services will affect the use of the band, as permitted in the United States. The U.S. must therefore oppose WRC-19 taking any follow up action based on any use of these bands that is inconsistent with action the U.S. takes between now and WRC-19. To the extent that there remain open issues with respect to these bands, the U.S. position on any proposals must assume the full use of the band for 5G mobile terrestrial operations under parameters similar to those adopted for other 5G bands.

The Commission has designated the 37.5-40 GHz band for 5G mobile terrestrial operations. The final U.S. position on any proposal at WRC-19 under this Agenda Item must result in the protection, and not reduction of the utility, of the band for 5G mobile terrestrial services, and include the limitations imposed on the use of the band in the *Report and Order*. Studies conducted pursuant to Resolution 159 regarding the 37.5-40 GHz band, and any proposals based on those studies, must take this into consideration.

^{14/} Resolution 159 (WRC-15), World Radiocommunication Conference (2015), http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0006PDFE.pdf.

E. Document WAC/021(24.10.16) – Agenda Item 9.1, Issue 9.1.9 – Studies Related to the 51.4-52.4 GHz for FSS Operations

This Agenda Item contemplates the possible allocation of the 50 GHz band for FSS, potentially as supported by studies conducted pursuant to WRC-15 Resolution 162.^{15/} This band is also under consideration in the *Further Notice* for 5G mobile terrestrial operations. Accordingly, the U.S. position on any proposals under this Agenda Item, like potential HAPS use of the 24 GHz band, and the bands specified in Agenda Item 1.6, must take into consideration actions taken pursuant to the *Further Notice*. Because there have been no U.S. decisions about use of the band, any study under WRC-15 Resolution 162 – and any proposals under this Agenda Item (such as a proposed allocation decision at WRC-23) that rely on those studies – may be flawed. The final U.S. position on any proposals under this Agenda Item must take into account how satellite use of the band will affect the use of the band as permitted in the United States. To the extent that there remain open issues with respect to the band, the U.S. position on any proposals must assume the full use of the band for 5G mobile terrestrial operations under parameters similar to those adopted for other 5G bands.

F. Document WAC/022(24.10.16) – Agenda Item 10 – Additional Spectrum for FSS at 37.5-39.5 GHz

This Agenda Item would set the Agenda for WRC-23, including a study of spectrum needs and possible reallocation of the 37.5-39.5 GHz band for FSS.^{16/} As noted above, the 39 GHz band was designated in the *Report and Order* for 5G mobile terrestrial use. Accordingly, the final U.S. position on this Agenda Item should only support addition of this item to the WRC-23 consistent with use of the 39 GHz band by terrestrial services in the United States.

^{15/} See *Public Notice*, Attachment A at 25-26; Resolution 162 (WRC-15), World Radiocommunication Conference (2015), http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0025PDFE.pdf.

^{16/} See *Public Notice*, Attachment A at 27-28.

III. CONCLUSIONS

As the Commission prepares its input on U.S. positions for WRC-19, it must preserve the good work it has accomplished, and expects to accomplish in the future, in the *Spectrum Frontiers* proceeding. The U.S. position on proposals related to particular agenda items should promote, to the maximum extent possible, exclusively licensed spectrum for 5G mobile terrestrial use. As T-Mobile and others have demonstrated, attempts to impose sharing techniques in spectrum allocated for terrestrial use will only diminish carriers' ability to serve consumer needs and inhibit the future growth of 5G services.

Respectfully submitted,

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November 8, 2016